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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,664	10/19/2001	Donald W. Berrian	389335	6893

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EXAMINER	
VANORE, DAVID A	

ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/032,664	BERRIAN, DONALD W.	
	Examiner	Art Unit	
	David A. Vanore	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-11,13 and 15-20* is/are rejected.

7)☒ Claim(s) *6,12 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed February 24, 2004 have been fully considered but they are not persuasive.

2. Applicant argues that Kaufman fails to teach the modification of a potential of a mirror electrode, and that grid 106 is not a mirror electrode. At Col. 9-10 of Kaufman, it is shown that the potential of grid 106 is varied and that such variation prevents electron accumulation on grid 90, providing more electrons in the chamber to cause ionizing radiation.

3. Applicant further argues that the Kaufman et al. device is not an ion souce. Item 40 is a flow of ionizable gas introduced chamber 84. A plasma is generated in chamber 48, therefore, the device and method of use in Kaufman is an ion source. As pointed out by Applicant at page 11 of the remarks, the plasma "may serve as a source of ions." Therefore, the device is an ion source, and its method of operation a method for controlling ion generation.

4. Applicant has argued at page 12 that since the mirror electrode limitation is missing, claims 2-3 are allowable over Kaufman. As pointed out above, the mirror electrode is termed a decelerator grid in the prior art and is the required mirror electrode.

5. Regarding claim 4, since current may be directly applied to the cathodic filament of Kaufman et al., such heating may be considered direct. Further, Kaufman discloses a hollow cathode. The examiner cites USPN 4,339,691 to Morimiya et al. as evidence indicating that in a hollow cathode, a heating unit is supplied to heat the cathode, rather

than apply a direct electrical current to the cathode, and thus provide indirect heating. Therefore, the hollow cathode of Kaufman et al. provides direct and indirect heating as previously pointed out.

6. Applicant argues that claim 7 is allowable for the same reasons as applied to claim 1. As pointed out above, these arguments are not persuasive. Further, though Applicant argues that the potentials are fixed, it is shown at Col. 6-Col. 7 that the potentials applied to the various elements, including the decelerator grid, or mirror grid, are varied to control current.

7. Applicant further argues that Kaufman et al. fails to teach the step of reducing or increasing the grid potential with regards to claims 8-9. As set forth at Col. 7 of Kaufman et al., the electron populations are controlled at least in part by electron populations in the chamber 84. As pointed out previously, these electron populations are controlled by the potential applied to the grids. Therefore, Kaufman et al. shows that increasing or decreasing grid potential is used to control electron population within the chamber, thereby controlling ion production.

8. Applicant arguments regarding 10-11, 13, and 15-16 are not persuasive for the reasons set forth above.

9. Applicant has argued that the grids of Kaufman et al, depicted in Fig. 8 for example, do not extend inside the chamber, and are not located on the other side of the chamber. Firstly, the grids at least extend across a width of a chamber opposite the filament, and also at least define an outer boundary of the chamber. Therefore, the grids extend

inside the chamber and are located on an other side of the chamber opposite the cathodic filament.

10. Applicant arguments regarding 18-20 are not persuasive for the reasons set forth above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-11, 13, and 15-20 stand rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kaufman et al.

Kaufman et al teaches an apparatus and method for controlling ion generation in an ion source (Col. 11 Lines 15-21) comprising a filament cathode (46), a mirror electrode (106), an ion precursor gas (40), a grid means (88, 90) and means (56, 94, 104, and 108) for controlling the potentials of the filament-cathode, grid, and mirror electrode to control the electron population and ion generation (Col. 6 Line 47 through Col. 7 Line 60) where the position and size of the grid apertures are also selected to control electron and ion populations (Col. 9) as recited in claims 1-3, 7-9, 13, 17, and 20.

Regarding claims 4-5, 10-11, 15-16, and 18-19, Kaufman et al. teaches at Col. 7 Line 11 that directly or indirectly heated cathodes may be used.

Allowable Subject Matter

Claims 6, 12, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach or suggest any response time for varying the intensity of the ion beam as recited in claims 6, 12, and 14. A response time of less than one millisecond is not taught or suggested in the prior art.

Conclusion

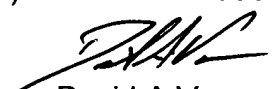
11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David A Vanore
Primary Examiner
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dav